**Conducting Background Research**

Why do we conduct background research?

1. Helps you gain in depth knowledge about the topic and process you will be observing during the investigation.
2. Sparks ideas about different variables to test when setting up the investigation.
3. Provides the basis for predicting what will happen in the investigation when making a hypothesis.
4. Provides the understanding needed to interpret and explain the results to others –especially a science fair judge!

Background research is also important to help you understand the theory behind your experiment. In other words, science fair judges like to see that you understand why your experiment turns out the way it does. You do library and Internet research so that you can make a prediction of what will occur in your experiment, and then whether that prediction is right or wrong, you will have the knowledge to understand what caused the behavior you observed.

The place to start building your background research plan is with the question for your science fair project. Let's imagine that you have asked this one:

**Question:** Does drinking milk help decrease spiciness better than water or Pepsi?

Begin by identifying the **keywords** and **main concepts** in your question. In this case keywords would be:

* Milk
* Spiciness
* Pepsi
* Water

Now, what might be some of the main concepts that relate to these keywords? Let's think about spiciness first. You're going to do a science experiment, so knowing that a spicy food tastes "hot" is probably not sufficient.

The secret is to use the "question words" (why, how, who, what, when, where) with your keywords. Ask why things happen, ask how things happen, ask what causes things to happen, ask what are the properties of key substances. Filling in a little table can help. This table can be **downloaded from my wiki.**

**Sample Background Research Plan**

Background research plan for the science fair project question:

Does drinking milk help decrease spiciness better than water or Pepsi?

***Keywords —***

* Milk
* Spiciness
* Pepsi
* Water

***Research questions —***

* Why do spicy foods taste hot?
* How does the tongue detect spiciness?
* How does one measure spiciness?
* What causes spiciness to increase (or decrease)?
* What are the properties and characteristics of spicy substances?
* Where in the body does spiciness occur?
* What is the composition of milk, Pepsi, and water?
* What are the properties and characteristics of milk, Pepsi, and water?

***Science concepts and/or areas of science —***

* Taste buds